

## The Soil Quality Institute

A leader in soil quality information and technology

The Soil Quality Institute (SQI) builds partnerships and provides leadership on soil quality issues. The Institute will evaluate, promote, and transfer technologies and research findings for use by the USDA Natural Resources Conservation Service (NRCS), technical assistance programs, resource inventory programs, soil survey programs, conservationists, and land managers to enhance the quality of our nation's soil.

### SQL partnerships

SQL projects are cooperative efforts involving a variety of partners. We cooperate with the research and conservation communities, and provide a link between the two. Our partners include NRCS field offices, NRCS institutes and centers, Conservation Districts, universities, the USDA Agricultural Research Service, other Federal agencies, State and local agencies, and other conservation organizations. We welcome suggestions for new techniques, tools, models, and management guidelines.

### What does the Soil Quality Institute do?

#### Soil assessment

We help develop science-based tools and guidelines for assessing, inventorying, and monitoring soil quality at geographic scales ranging from field-level conservation planning to national-scale policy development. We work with partners to develop the following:

- Guidelines for Soil Quality Assessment – a publication available on our Web site
- Dynamic properties database – a cooperative initiative to provide soil-specific information about how soil properties change with land use and management.
- Methods to measure and sample soil carbon.

#### Soil management

We help identify viable resource management approaches that improve or maintain soil quality on farms, ranches, forests, and other lands. We address the interaction of soil with other resource concerns including water and air quality, habitat, and human health. For example, we have helped with the following efforts:

- Technical Notes – publications about soil quality and agronomic and urban development practices, available on our Web site.
- Soil Conditioning Index – a tool to identify farming systems that enhance or degrade soil organic matter.

#### Education and customer service

All our projects lead to training or informational materials accessible for our diverse customers. We produce fact sheets, posters, and clip art that help conservationists raise awareness of the importance of healthy soil, and appropriate land management practices. See our Web site for information about all our products including:

- Soil Biology Primer
- Soil Quality Information Sheets
- Hands-on and computer-based training for soil quality educators in the NRCS.

## Contact the Soil Quality Institute

To learn more or to make suggestions about SQI products, services, and partnerships, visit the SQI Web site at: <http://soils.usda.gov/sqi>

Or contact the SQI staff:

Auburn, Alabama  
William Puckett, Director  
334-844-4741 ext. 178  
[bpuckett@eng.auburn.edu](mailto:bpuckett@eng.auburn.edu)

M. Lee Norfleet, Soil Scientist  
334-844-4741 ext. 176  
[norfleet@eng.auburn.edu](mailto:norfleet@eng.auburn.edu)

Michael D. Hubbs, Agronomist  
334-844-4741 ext. 177  
[mhubbs@eng.auburn.edu](mailto:mhubbs@eng.auburn.edu)

Las Cruces, New Mexico  
Arlene J. Tugel, Soil Scientist  
505-646-2660  
[atugel@nmsu.edu](mailto:atugel@nmsu.edu)

St. Paul, Minnesota  
Ann M. Lewandowski, Geographer  
612-624-6765  
[alewand@soils.umn.edu](mailto:alewand@soils.umn.edu)

Ames, Iowa  
Susan Andrews, Ecologist  
515-294-9762  
[andrews@nstl.gov](mailto:andrews@nstl.gov)

---

Learn more about the NRCS at: [www.nrcs.usda.gov](http://www.nrcs.usda.gov)

The U. S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, or marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communications of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326W, Whitten Building, 14<sup>th</sup> and Independence Avenue, SW, Washington, DC 20250-9410 or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

August 2002  
CCS-FTW 02-83



# Soil Quality Institute



<http://soils.usda.gov/sqi>



Air quality

Water quality

Wildlife habitat

Watershed health

Carbon sequestration

### Soil quality is the basis of healthy natural resources.

Soil quality is fundamental to most natural resource concerns, so monitoring soil quality can provide early indication of threats to productivity, water quality, and other resources. Assessing soil quality helps determine the effectiveness of nutrient management, buffers, carbon sequestration plans, and other practices.

“To be a successful farmer one must first know the nature of the soil.”

—Xenophon,  
Oeconomicus, 400 B.C.

“Poor land makes poor people.”

—Hugh Hammond Bennett,  
first chief of SCS/NRCS

“Providing leadership in a partnership effort to help people conserve, maintain, and improve our natural resources and environment.”

—NRCS Strategic Plan  
2000-2005

## Soil quality is the capacity of a specific kind of soil to function.

### The major soil functions are:

- Sustaining plant and animal life
- Cycling nutrients
- Regulating water flow
- Filtering and buffering potential pollutants
- Supporting structures

### All land uses depend on healthy soil functions.

Land management can change the capacity of soil to function. Land management practices should be appropriate for the land use and the inherent characteristics of the soil, and they should address resource concerns and land managers' objectives.

“Land does not lie;  
it bears record of  
what men write on it.”

—*Conquest of the Land  
Through 7,000 Years*  
W.C. Lowdermilk, 1953

“A given soil will not  
reach its best quality  
as long as its management  
includes leaving it naked.”

—Bobby G. Brock,  
Conservation Agronomist,  
NRCS, North Carolina, 2002

“The soil is our factory;  
if we don't maintain it  
then we are out of business.”

—Maryland farmer, 1997



Forests

Cropland

Rangeland

Recreational lands

Urban development

Home and garden